TECHNOLOGY DIVISION

MANITOBA INDUSTRIAL QUALITY AUDIT PROJECT
SUMMARY REPORT

Industrial Technology Branch
Manitoba Industry, Trade and Tourism
August 1991

92-03058/

EXECUTIVE SUMMARY

A trial 1989/90 initiative, the Manitoba Industrial Quality Audit Project, was funded by Manitoba Industry, Trade and Tourism. The project was intended to foster Manitoba's aerospace supplier base through helping a group of four small sized firms upgrade their quality standards and quality assurance procedures. Quality upgrading was assisted by consultants, selected by the participating firms, with the Provincial contribution consisting of cost-shared grants and staff assistance.

The firms that received support were:

- *GPT (Canada), GEC Plessey Telecommunications (Canada) Ltd.;*
- *Electro Trac Circuits Ltd.;*
- *Linear Systems Ltd.;*
- *Vansco Electronics Ltd.*

The overall objective of this pilot project was to assist these manufacturing firms acquire the required level of quality manufacturing and management standards and capabilities necessary to undertake aerospace/defence supplier and sub-contracting business internationally. For the purposes of this project, the area of production quality includes quality control, quality assurance, total quality management, and various aspects of automation. The term "Quality Audit" took on a broader meaning than that usually understood by quality professionals (ie. quality auditing is a specific discipline).

A major difference between this project and typical government granting programs was that close advisory interaction continued between the four firms, the Project Manager, and select technical experts after the grants had been awarded. Various on-going group discussions were held with the client firms. Major technical assistance was provided by Dr. W. Willborn, Faculty of Management, University of Manitoba.

As a result of project support each participating firm upgraded its quality standards, training and procedures. While the financial support provided by the project could not cover all of the costs involved, it was the deciding factor in motivating each firm to expend significant resources to improve

quality. The group sessions where problems and activities were discussed, and one-on-one technical advisory sessions that were provided by Dr. Willborn, proved to be very useful.

A least in one case, a client firm reported winning a major contract with an international aerospace/defence firm as a direct result of the support provided by the project for upgrading quality procedures. Another participating firm went on to secure major support from the federal government for a further upgrading of quality-related manufacturing systems, and is manufacturing test-fixtures for components of the Mobile Servicing System, the Canadian Space Agency's contribution to the U.S. Space Station Freedom.

The Manitoba Industrial Quality Audit Project demonstrated that a small focused initiative can assist small-to-medium sized local firms to significantly upgrade quality capabilities. Experienced technical advice and group interaction and feedback proved particularly valuable. Conceivably, such activities could be expanded to a broader program level that is industry-driven. Innovative methods must be found to utilize existing resources for greater economic development impact. Fortunately, Manitoba has a strong existing foundation upon which to build future quality-directed activities.

Introduction

High levels of quality standards are a necessity in today's increasingly competitive global marketplace, in particular for advanced technology-intensive industrial sectors such as aerospace. The area of production quality includes quality standards, quality assurance, quality management, and various aspects of automation, and is a demanding technical discipline in its own right. However, the high level of technical expertise required to obtain these high quality standards is often beyond the reach of small-to-medium sized Manitoba firms.

There has long been a perception that Manitoba industry lags in the application of modern quality management and production techniques, with a corresponding loss of productivity and economic opportunities. This perception was highlighted in the March 1987 OECD report "Innovation Policy in Western Canada" which recommended the establishment of a "Quality Assurance Centre" in Manitoba.

As an initial response to this perceived inadequacy, a consultant's study was commissioned by the Industrial Technology Branch, Manitoba Industry, Trade and Tourism, under the Canada-Manitoba Economic Development Planning Agreement that specifically examined Manitoba industrial quality practises. The Canadian Manufacturer's Association (CMA) participated on this report's Study Management Committee and was supportive of its findings and recommendations. The May 22, 1987 report, "Quality Assurance in Manitoba", confirmed that Manitoba industry was indeed lagging in the use of modern quality methods.

The report recommended that the Manitoba Government should play a proactive role in facilitating the modernization of Manitoba industrial quality capabilities. Specific activities such a proposed initiative could undertake were outlined in "Quality Assurance in Manitoba", and would include cost-shared funding of "quality audits" for local firms.

Project Description

A pilot 1989/90 initiative, the Manitoba Industrial Quality Audit Project, was funded by Manitoba Industry, Trade and Tourism. The project was intended to foster Manitoba's aerospace supplier base through helping a group of four small sized firms upgrade their quality standards and quality assurance procedures. Quality upgrading was assisted by consultants, selected by the participating firms, with the Provincial contribution consisting of cost-

shared grants and staff assistance. The Project Manager was Dr. Ronald D. Humble, Industrial Technology Branch, Manitoba Industry, Trade and Tourism.

It was determined that, given the limited project financial resources, only four Manitoba aerospace-related firms would be able to effectively improve production and product quality with the assistance of a total grant budget of $40,000 ($10,000 per firm). The project concentrated on aerospace-related businesses (or firms with potential in this area) because this is a strategic priority technology sector for the Province, and the Industrial Technology Branch operates the Manitoba Aerospace Technology Program with an extensive existing base of small to medium sized client firms. Such a selection also provided focus to what was, after all, an experimental project, rather than a full access program.

A total of 22 small-to-medium sized Manitoba firms involved with the aerospace/defence sector, selected by the Project Manager and the Manitoba Aerospace Technology Program Manager with a view to growth and diversification potential, were formally contacted during December 1989 by the Project Manager to solicit their interest in participating with the project. For the purposes of the project, bureaucratic application procedures were minimized. It was emphasized that the participants would have to invest a significant amount of their own resources. After various discussions and some false starts the choice was narrowed to four firms, each involved with some aspect of computer/microelectronics/electronics production. The employee size of each volunteer firm ranged between approximately 10 to 60 staff.

The firms that received support were:

- *GPT (Canada), GEC Plessey Telecommunications (Canada) Ltd.;*
- *Electro Trac Circuits Ltd.;*
- *Linear Systems Ltd.;*
- *Vansco Electronics Ltd.*

Project Objectives

The overall objective of this trial project was to assist a group of small local manufacturing firms acquire the required level of quality manufacturing and management standards and capabilities necessary to undertake aerospace/defence supplier and sub-contracting business internationally. For the purposes of this project, the area of production quality included quality control, quality assurance, total quality management, quality standards, Statistical Process Control and various aspects of automation. The term "Quality Audit" for this project took on a broader meaning than that usually understood by quality professionals (ie. quality auditing is a specific discipline).

The client firms each had differing, but related, initial expectations of what would result from their participation with the project:

- *A meaningful, independent audit of existing quality programs.*
- *Official certification of existing quality program levels, such that international market opportunities can be expanded.*
- *A better understanding of the relationship/equivalency, if any, between various commonly used quality standards (eg. AQAP, ISO, MILSPEC, etc.).*
- *A determination of which standard(s) best suit the future needs of each firm.*
- *The achievement of formal recognition of compliance with a widely recognized Quality Standard (eg. CSA Z299.2).*

Project Activities

The project cost-shared consultants' quality related studies for each firm at a level of 60%, to a maximum of $10,000 per firm. The contracts for the studies were between the client firms and the consultants, with the Manitoba Government providing grant and staff assistance. The client firms selected their own consultants, with technical advice from Manitoba Government and University of Manitoba staff. Consulting organizations were from both within and outside of Manitoba.

A major difference between this project and typical government granting programs was that close advisory interaction continued between the four firms, the Project Manager, and select technical experts after the grants had been awarded. Various on-going group discussions were held with the client firms. Representatives of the client firms requested the input of

Dr. Walter Willborn, Faculty of Management, University of Manitoba, who provided voluntary expert assistance through the provision of technical advice and answering various quality-related questions. Dr. Willborn is an internationally-recognized expert in the area of quality production, standards and management.

In total, between January 1990 to July 1990, the client group met five times, with each meeting lasting from two to three hours. These meetings took the form of round-robin discussions of the progress and problems encountered by each firm, with the Project Manager moderating and Dr. Willborn providing technical advice. At these meetings the client firms were consistently represented by top management and quality assurance staff. The Project Manager also disseminated assorted literature on such topics as Total Quality Management (TQM), U.S. Department of Defence quality initiatives and aerospace industry quality developments.

Dr. Willborn provided personal "pre-audit" inspections of the facilities of several of the firms.

A special meeting with Larry Rogers, President of the Canadian Standard Association's Quality Management Institute (QMI), was arranged for October 10, 1990 at the Infotech Resource Centre, and was expanded to include some two dozen more local firms. The organization and functions of the QMI, Canada's major quality standard accreditation organization, were detailed, along with a question and answer session.

In addition, during the period from January 1990 to March 1991, twelve separate meetings were held by the Project Manager with individual client firms, Dr. Willborn, quality consultants, etc., along with numerous related telephone conversations and written correspondence. In summary, the project involved a detailed coordination effort by the Project Manager for the client firms.

Project Results

During January 1991 a project questionnaire was developed by Dr. Willborn and the Project Manager to formally solicit feedback and comments from each of the four client firms on the utility of the project and how the support was put into practise (see Appendix A). A detailed response was received from each of the client firms. This information was used to supplement that obtained during the earlier group and individual meetings.

The survey results indicated that, overall, each firm's initial expectations of the project were met or exceeded. As a result of project support each participating firm upgraded its quality standards, training and procedures. While the financial support provided by the project could not cover all of the costs involved, it was the deciding factor in motivating each firm to expend significant resources to improve quality. The group sessions where problems and activities were discussed, and one-on-one technical advisory sessions provided by Dr. Willborn, proved to be very useful.

A least in one case, a client firm reported winning a major contract with an international aerospace/defence firm as a direct result of the support provided by the project for upgrading quality. Another participating firm went on to secure major support from the federal government for a further upgrading of quality-related manufacturing systems, and is manufacturing test-fixtures for components of the Mobile Servicing System, the Canadian Space Agency's contribution to the U.S. Space Station Freedom.

One of the other client firms is nearing the ISO9002 quality standard registration level. There are indications that registration against this International Standards Organization standard will be a prerequisite for North American companies wishing to do business in Europe after 1992. The project illustrated a clear trend towards the eventual compulsory adoption of ISO standards by all internationally competitive firms.

Another client firm was certified against a major international company standard, Ford Q1.

The development and upgrading of Statistical Process Control (SPC) methods and staff training turned out to be a major element of project support for several of the clients.

Using project support for the adoption of the Total Quality Management (TQM) philosophy was not an immediate requirement for any of the client firms, but they all expressed an interest and desire to eventually learn more about it. One of the firms responded in the questionnaire:

> *"We are committed to a Total Quality approach to our company's structure, policies and approach to management and development. I mean this in the context of putting as much decision making power in the hands of as many people in the organization as possible."*

The certification of specific quality standards correlated with specific business opportunity requirements, and hence were a more pressing need for such small-to-medium sized businesses. The adoption of TQM by such firms will have to deal realistically with their customers' requirements for meeting specific, traditional quality standards. However, if properly implemented, TQM should be of great benefit towards qualifying for any quality standard.

A major hinderance for small-to-medium sized Manitoba manufacturing firms upgrading quality standards of all types was, at the initial time of the study, the perceived lack of a choice of suitable local consultants and a convenient and low-cost quality program certification and registration body. In subsequent discussions after the completion of the project, the entire group agreed that the Province could provide a valuable role by cost-sharing quality audits by existing bodies, and/or filling an "apparent need for independent auditing resources" through a non-profit alternative Manitoba program.

Participant's Comments

The client firms' opinions on the usefulness and perceived shortcomings of the project, and ultimate successes resulting from it, are best conveyed in their own words. Comments have been edited only to protect the confidentiality of each client firm and other organizations and individuals not directly participating with the project. Specific comments from the questionnaire results were:

- *"The financial support, while most welcome and appreciated, was insufficient in retrospect. The costs involved in introducing and documenting a QA program are very high. The Government's willingness to participate, however, was sufficient to spur us on to undertake a very necessary and worthwhile task. The support received from experts in the field, such as Dr. W. Willbom, was excellent. The project provided the opportunity to network with and benchmark other participating companies. Very worthwhile."*

- *"At the present time there appears to be a number of benefits we received from this project:*
  - *(a) Overall quality of our product has improved dramatically and we have had only one job rejected over the past year.*
  - *(b) (The firm) recently signed a contract with a Vancouver, British Columbia customer worth a minimum of $180,000 and possibly could exceed $500,000 over a one year period. The procurement of this contract is specifically related to the project and the redesigned quality manual." (emphasis added)*
  - *(c) As a direct result of this project (the firm) is well on to building a reputation as the best quality circuit board shop in Western Canada."*

- *"The level of support was mainly financial in our case. We needed to learn about requirements for meeting FCC and DOC approvals for our products and also wanted to get approval for some of them. As a side issue we also learned about manufacturing standards such as ISO 9002, ISO 1011, Z299 and how this applies to smaller high technology companies for future reference."*

- *"The financial level of support received through this project was suitable. The technical level of support received through this project was also suitable in the local context... This support included the expertise of Dr. Walter Willbom. He helped us to seek out a recognized body who could grant ISO certification... The chance to network with people such as Dr. Willbom from the University and the people from (another client firm) is a very valuable support resource which we may be able to draw upon in the future."*

- *"The level of support was quite adequate, both technically and financially. However, the support did not encompass or anticipate an capital requirements."*

- *"The assistance received was used to develop a quality control system to international standards, as well as a four day training course on Statistical Process Control for all employees."*

- *"The financial assistance received was used for Training which was essential for the implementation of our Statistical Process Control (SPC) program. SPC is essential for Ford Q1 recognition."*

- *"We specifically benefitted from the financial assistance towards our SPC training. We are also more enlightened now as to the current state of standards certification in this country."*

- *"We have engaged the services of the Department of Statistics at the University of Manitoba for training in Statistical Process Control."*

- *"The purpose of this project, from our perspective, was to improve the quality level at (the client firm). The initial objective was to achieve certification to either Z299, ISO or some other recognized quality standard. However, as the project developed, it became apparent that there was no certifying body in Canada which could be worked with reasonably. Therefore, we chose to use the pilot project's assistance to help us achieve Ford Q1 recognition."*

- *"The major technical problem was determining who could teach the SPC course to our staff. Based on contacts developed through this project and discussions with our technical advisor...we were able to engage very knowledgable consultants...One other technical problem was ensuring I choose the best qualified consultant for redesign and implementation of our quality manual. This again was determined based on group discussions with participants and the technical advisor."*

- *"Financial assistance was the element most helpful to us in that it gave us the extra push and incentive to get the job done. I do not know how meeting these standards will improve our bottom line. I learned from the group meetings that meeting quality standards is an important consideration by the volume purchaser. I hope that these efforts will show this in the long run."*

- *"It certainly provided a push to us to get this work done. In the longer run I also expect to implement ISO and/or CSA manufacturing standards. I now know how to go about this now."*

- *"...I also needed to have some of our products pass the FCC and DOC approvals so they could be sold to larger markets in the U.S. as well as Canada... The FCC and DOC required that our products meet standards for Radio Frequency Emissions. The FCC standard is important for us because it makes export of the products easier to the U.S. This is achieved at two levels. Firstly it makes it easier to export since U.S. Customs now requires that a statement of compliance accompany all board level products imported into the U.S. Secondly, customers are asking for compliance. The customers who are interested in purchasing large numbers of the products are most interested in this qualification."*

- *"We found the standards, eg. CSA Z299, to be difficult to interpret due to these being too generic in form. There are no really detailed standards, and what does exist is too wide open and leaves itself open for too much varying interpretation by individual auditors."*

- *"While some networking with other companies did occur, it was insufficient and should have been given a greater priority."*

- *"I like the group approach around a table with periodic meetings to report on progress and problems. I think I would have benefitted from having a short history of how the organized quality procedures have evolved and what the present state of affairs is, ie. regarding CSA, and how Canadian Standards relate to the European Standards. It would be useful if this discussion could include DOC, FCC, VDE and JATE standards for equipment. This is important since a failure to meet these standards can mean exclusion from European and Japanese markets just as well as by manufacturing quality. These international quality standards do appear to be more "performance" oriented rather than build quality and failure rate oriented, however I think they are just as important."*

- *"It was enlightening to hear how other companies were facing the quality issue and I learned a great deal from hearing what they were proposing to do about it. The great difference between this method and consulting services is that it was not One-on-One. Because of this I got an idea of the context of the standards I would not have received from a consultant."*

- *"I believe the service was enhanced in comparison to other government services due to the exchange of information from other participants and the technical assistance provided by the province."*

- *"I do not personally know of other locally available government or consulting services which are comparable to this one. Of late, the Canadian Manufacturers' Association (CMA) has had breakfast seminars on Quality. These have given us an opportunity to listen to speakers and to network on the subject."*

- *"We are now operating at a QA standard recognized by our customers to be at the CSA Z299.2 level. This will be of value when tendering on future contracts."*

- *Possible improvements if project was expanded to a program: "More Government assistance in: (a) finance; (b) chairing networking meetings and providing presentation materials eg. videos seminars, etc. after the projects gets underway."*

- *"To my knowledge, there are no Winnipeg consulting services which are recognized as having expertise in ISO..."*

- *"If this project is repeated I believe a local quality consultant should be integrated into the program. This would enhance their knowledge of what the companies want and need from a quality expert."*

- *"I would think that the project might be improved if it were linked into a broader information network which could direct us more easily to certifying bodies; locally (if possible), nationally, in the U.S.A. and internationally. I have recently learned that there are three certifying bodies in the U.S.A. The merits of these three are unknown to me."*

- *"The project helped us to survey the availability of recognized groups which would be able to certify our Quality Programs to an internationally recognized standard. We found that there were very few such groups available."*

- *"I saw no shortcomings. The project was sufficiently flexible to cover the needs of (the firm) as well as other businesses which were not similar to (the firm)."*

- *"The shortcomings, as I see them, were not with the project as such. The shortcomings were:*
  (a) the lack of knowledge available to us as to who exists in Canada who can grant ISO certification;
  (b) the apparent fact that there is only one such group; and
  (c) the degree to which its certification is recognized internationally is not clear."

- *"QA standards for Canadian industry should be certified by an organization more interested in the future well being of industry in Canada and less profit motivated."*

- *"I do not believe that there were any shortcomings with the project, however, I believe the province should try to identify and support local quality consultants..."*

- *"Government is on the right path when it encourages and spurs industry to upgrade quality."*

- *"This project has helped (the firm) to improve our quality which otherwise we would not have been able to do. I believe that this type of project is essential for small Manitoba manufacturers."*

- *"From the 'industry' point of view I think a program like this would be very useful. I cannot justify it's importance relative to other programs which would also consume precious monetary resources, but I think it has as much relevance as programs available for market research assistance, for instance. Since this program would be focused mainly on established firms with established products, I think that a Quality Audit Program would have good results helping Manitoba firms produce 'World Class' products. It would help Manitoba firms compete at an international level with their products."*

- *"I think that the work that this project has started should be carried forward. This project has illuminated a deficiency in this country with regard to the availability of an unbiased, affordable, recognized ISO certifying body. Europe '92 requires all companies to be certified to ISO. There is an increased tendency for American companies to recognize the ISO standard."*

Future Directions

The Manitoba Industrial Quality Audit Project has demonstrated that a small focused initiative can assist small-to-medium sized local firms to significantly upgrade quality capabilities. Experienced technical advice and group interaction and feedback proved particularly valuable. Conceivably, such activities could be expanded to a broader program level and could be industry-driven.

Innovative methods must be found to utilize existing resources for greater

economic development impact. Fortunately, Manitoba has a strong existing foundation upon which to build future quality activities.

Activities within Manitoba Industry, Trade and Tourism supportive of upgrading quality in local industry have included seminars organized by the Manitoba Aerospace Technology Program and selective support to firms provided through the Manufacturing Adaptation Program. Departmental staff have also participated with industry and university led groups that are promoting quality management and other quality practises throughout the community.

Federal government quality-related initiatives provide equipment and training assistance to industry through the departments of Western Economic Diversification, Industry, Science and Technology and Canada Employment and Immigration. The federal government's ***Canada Awards for Business Excellence*** *also has a dedicated awards category for quality.*

Several Manitoba-based consulting firms have become more active in quality-related areas, and one Calgary-based firm that specializes in quality has now recently opened an office in Winnipeg.

Organizations such as the University of Manitoba and the local chapter of the American Society for Quality Control have also been very active in promoting concepts of management and production quality. In particular, the University's the Faculty of Management and the Department of Statistics have been instrumental in developing seminars and industry workshops in such areas as Statistical Process Control, international standards and total quality management. An interdisciplinary University team is currently conducting advanced research towards the development of a quality management technical support system which integrates expert and hypertext computer-based systems. The University also offers a one year certificate program in Quality Assurance Management through its Continuing Education Division.

A new organization has been formed to promote the practise of Total Quality Management (TQM) in Manitoba: ***Total Quality Manitoba, Inc.*** *This organization's executive committee has a broad membership, with strong support and leadership from the private sector. It has the overall vision of helping Manitoba "become renowned for the quality and value of its goods and services in both the Public and Private sectors", through the mission of creating "a community focus on TQM management concepts".*

TQM is a top management-down philosophy that goes beyond traditional quality control and quality assurance practises used in a manufacturing environment. While employing elements of Statistical Process Control and quality assurance, TQM requires a craftsmanship-like ethos in which everybody takes pride in doing their best work, minimizing costs, doing things right the first time, and employing personal initiative for continuous work improvements. It can be employed in both the private and public sectors, and in manufacturing and service sector environments - in theory literally everywhere. TQM is not just about the improvement of end product quality. It is an attitude about working better, regenerating workplace efficiency, bettering contractual performance, reducing time between transactions, lowering costs, operating hardware more efficiently, and being a leader in competitive international markets. It should be noted that quality practitioners must still integrate internationally recognized quality standards within a TQM framework for supplier and customer recognition purposes. TQM has been employed to great apparent success by several cities in the U.S., and with great enthusiasm by several local firms, notably Bristol Aerospace, Standard Aero, Dominion Bridge, Reimer Express Lines, Cargill, and various Manitoba health care organizations.

International examples of industry-driven efforts to upgrade quality are also potential models for Manitoba. For example, documentation provided by a local firm with its parent company in Germany, entails an interesting approach for introducing and developing quality management programs in small manufacturing companies. In Germany an industry association formed a steering committee for a demonstration project with the title "Introduction of A Quality Assurance System in Accordance with ISO 9001/EN29001 in Small Companies". With assistance of a consulting firm, a few select elements of such a system were designed and implemented in four non-competitive firms. The experiences gained from this field experiment were presented in a seminar/workshop to a wider audience. The industrial participants financed the entire project.

Such focused efforts to increased quality levels in Manitoba industry will result in benefits including increased productivity, access to new markets (eg. the international aerospace market, the Canadian Space Program and the European Economic Community), and import substitution. Increased capabilities in advanced quality methods will allow Manitoba industry to more easily adopt other advanced technologies such as "just-in-time" production methods, flexible manufacturing and robotics.

Globally, companies and nations are re-evaluating how they manage business processes as a result of changing conceptions of their customer relationships. More stringent levels of quality are an integral part of this changing international economic order. A failure to upgrade quality will result in decreasing international business opportunities for Manitoba industry.

APPENDIX A: CLIENT QUESTIONNAIRE

MANITOBA INDUSTRIAL QUALITY AUDIT PROJECT
FINAL REPORT QUESTIONNAIRE

1. What, in your opinion, was the purpose and objective of this pilot project?

2. Was the level of support received through this project suitable:

   a) Financial?
   b) Technical?
   c) Other?

   If not, please explain briefly.

3. How does this service compare with other similar services rendered by government, consulting firms, experts, other firms, associations?

4. What was your company's objective and expectation with regard to this project?

5. Did you use the assistance received for:

   a) Training?
   b) Program development?
   c) Implementing Total Quality Management Program?
   d) Statistical Process Control?
   e) Program in compliance with a Quality System Standard?
   f) Other?

6. What technical problems did you face for which this project was of help?

7. What element of the project helped you to solve these problems entirely, or in part:

   a) Financial assistance?
   b) Group meeting?
   c) Visits by technical advisor?
   d) General information?
   e) Other?

8. What shortcomings of the project were encountered?

9. What were specific benefits from the project?

10. What are possible improvements if this project should be repeated?

11. Should this project be repeated and expanded, possibly into a program? If not, why not?

Please make your answers as detailed as you wish and return to:

Dr. Ronald D. Humble
Industrial Technology Branch
Manitoba Industry, Trade & Tourism
430-155 Carlton Street
Winnipeg, Manitoba
R3C 4H8

12. What is your quality-related experience with:

    a) local/regional consulting services for quality management?
    b) governmental assistance programs?
    c) local/regional educational services and training courses?
    d) Quality Program Registration Services, eg. Q.M.I.?
    e) Q.M.I. Audits?
    f) Meeting with other firms of the Group?
    g) Standards and Guides for Quality Management?
    h) Total Quality Management approach and services?

13. Do you want to share the specific results of your survey reply with other company members of the project Group?

14. Do you want to discuss this survey separately during a visit at your company? If so, before or after responding to this questionnaire? (Please contact Ron Humble at 945-0127).

Again, thank you for your cooperation!